THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

Paper No. 32

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKASHI MATSUURA, KENJIRO HIGAKI
and HIDEO ITZAKI

Appeal No. 1997-2628
Application No. 08/383,713

ON BRIEF

Before KIMLIN, WALTZ, and KRATZ, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's refusal to allow claims 6-9, 11 and 12, which are all of the claims remaining in this application.

BACKGROUND

Appellants' invention relates to a method for manufacturing a substrate for a superconducting microwave component. First and second thin films of Tl-Ba-Ca-Cu-O

compounds are formed, respectively, on first and second planar surfaces of an underlying dielectric substrate. Thereafter, the coated substrate is annealed under specified conditions to yield substantially uniform superconductive characteristics in the first and second thin films. An understanding of the invention can be derived from a reading of exemplary claim 8, which is reproduced below.

> 8. A method for manufacturing a substrate for a superconducting microwave componet, the substrate being composed of an underlying dielectric substrate and a pair of oxide superconductor thin films formed on a pair of opposite planar surfaces of said underlying dielectric substrate, respectively, the method including the steps of:
>
> forming a first Tl-Ba-Ca-Cu-O compound oxide thin film on a first planar surface of said underlying dielectric substrate,
>
> forming a second Tl-Ba-Ca-Cu-O compound oxide thin film on a second planar surface of said underlying dielectric substrate, and
>
> annealing said underlying dielectric substrate coated with said first and second Tl-Ba-Ca-Cu-O compound oxide thin films in an oxygen atmosphere that contains not less than 5 mol% of thallium at a temperature in the range of 850EC to 900EC inclusive for a time in the range of one to three hours inclusive, to produce substantially uniform superconductive characteristics in said first and second Tl-Ba-Ca-Cu-O compound oxide thin films.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Dworsky	4,918,050	Apr. 17, 1990
Jack	4,962,316	Oct. 09, 1990
Higaki et al. (Higaki)	5,114,906	May 19, 1992

Claims 6-9, 11 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Higaki in view of Dworsky or Jack.

OPINION

Upon careful consideration of the opposing arguments presented on appeal, we concur with appellants that the applied prior art fails to establish a prima facie case of obviousness of the claimed subject matter. Accordingly, we will not sustain the examiner's stated rejection.

At page 5 of the answer, the examiner states:

> [i]t is the examiner’s position that while Higaki does not show that the superconductor thin film is deposited on both sides of the substrate, however, it is considered that such two sides deposition is obvious to one of ordinary skill in the art since Higaki in column 1, lines 35-37, shows that his method can be utilized in many applications which can be a microwave component, and the secondary references clearly show that microwave components

require a dielectric substrate with two superconductor thin films.

The examiner (answer, page 5) further opines that:

> [t]he basis for the combination is that Higaki clearly shows that microwave component can be formed by using Tl-Ba-Ca-Cu-O compounds as superconductor materials and heat treatment of the deposited thin film would enhance thin film uniformity and characteristics.

The difficulty we have with the examiner's stated position stems from the fact that Higaki's teachings are directed to a method of forming a single thin film at the {110} plane of a single crystal of magnesium oxide, not a process for forming thin films on opposite planar surfaces of a dielectric substrate in a manner to produce essentially uniform superconductive characteristics for both films. (See Higaki at column 2, lines 66 through column 3, line 9 and the examples). Moreover, the examiner has not specifically pointed out where either of the alternative secondary references relied upon by the examiner teaches or suggests a method, as claimed herein, for forming such films of substantially uniform superconductive characteristics on opposite sides of a dielectric substrate.

While the examiner notes that the device made by Higaki may have applicability as a microwave device component, we do not share the examiner's viewpoint that such a general teaching of utility would have suggested the claimed process herein. In this regard, we note that the showing of the teaching or motivation to combine prior art references must be clear and particular. See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

We are cognizant that Higaki mentions a Josephson device, Matisoo switching elements, Anacker memory device and Super-conducting Quantum Interference Device as possible applications of thin film devices (column 1, lines 24-40 and carryover sentence, columns 4 and 5). However, the examiner has not convincingly explained how any of these potential applications would have suggested a method corresponding to the claimed method herein. In addition, the examiner has not pointed to any particular disclosure of either of the secondary references that would suggest modifying the process of Higaki to arrive at the herein claimed manufacturing method steps. We note, for example, that the transmission line (10) in Figure 1 of Jack includes a ground plane (12) on one side

of dielectric layer (14) and a superconducting electrode (16) on the opposite side, not opposing films of substantially the same superconducting characteristics. While Dworsky discloses a resonator device that has two superconducting layers separated by dielectric layers (column 3, lines 10-64) with the superconducting materials disclosed as being selectable from a wide variety of listed options (column 6, lines 15-32), the examiner has not convincingly explained how such general teachings of Dworsky concerning a resonator device for use in electronic filters would have suggested modifying the method disclosed in Higaki in any manner let alone in a manner so as to result in the appellants' claimed process.

It is well settled that the examiner bears the initial burden of presenting a prima facie case of unpatentability. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). On this record, the examiner has simply not established any convincing reason or suggestion to combine the references as proposed. The examiner has failed to point to convincing evidence of a suggestion from the prior art, the knowledge of one of ordinary skill in the art, or the nature of the problem itself. See In re Dembiczak, supra.

Additionally, the examiner has not established that a process corresponding to that at issue herein would have resulted even if the prior art references were combinable for reasons as set forth in the briefs.

For the foregoing reasons and those set forth in appellants' briefs, we determine that the examiner has not established a prima facie case of obviousness in view of the reference evidence. Accordingly, the examiner's rejection of the claims on appeal under 35 U.S.C. § 103 as unpatentable over Higaki in view of Dworsky or Jack is reversed.

The decision of the examiner is reversed.

REVERSED

EDWARD C. KIMLIN Administrative Patent Judge	)
THOMAS A. WALTZ Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
PETER F. KRATZ Administrative Patent Judge	)

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APPEAL NO. - JUDGE KRATZ
APPLICATION NO.

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DECISION: **ED**

Prepared By:

DRAFT TYPED: 26 Jan 01

FINAL TYPED: